



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Configuring JPL X400 Cordless DECT Headset with EHS from JPL Limited with Avaya 96x1 Series IP Telephones – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps for provisioning JPL X400 Cordless DECT Headset with EHS from JPL Limited with Avaya 96x1 Series IP Telephones using both H323 and SIP protocols to ensure full interoperability.

Readers should pay attention to Section 2, in particular the scope of testing as outlined in Section 2.1 as well as the observations noted in Section 2.2, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab

# 1. Introduction

These Application Notes describe the configuration steps required to integrate JPL X400 Cordless DECT Headset with Electronic Hook Switch (EHS) from JPL Limited with Avaya 96x1 Series IP Telephones using both H323 and SIP protocols.

The JPL X400 Cordless DECT Headset with Electronic Hook Switch (JPL-X400) is a wireless DECT headset; ideal for use at home, in a call centre and in any sized office. The noise cancelling microphone produces quality sound and digital volume control allows the adjustment of noise levels with ease. With 9 hours of talk time and 150 metre range, the JPL-X400 gives freedom and flexibility around a working environment.

Electronic Hook Switch (EHS) provides a solution that enables remote operation, answer/end functions, of wireless headset with various phones, thus eliminating the need for a mechanical handset lifter. Wireless headsets with EHS functionality provide the user with the ability to answer and end a call, while away from their desk.

JPL Limited design and develop professional headsets for the Corporate, Financial, Health, Government, Educational, Industrial, Hotel & Hospitality and Contact Centre market sectors.

## 2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on placing calls to and from the Avaya 96x1 Series IP Telephones with each JPL-X400 headset attached and verifying two-way audio. The call types included calls to voicemail, to local extensions, and to the PSTN. The Avaya telephone user should be clearly heard and observed without any distortions or audio issues. The serviceability testing focused on verifying the usability of the JPL headset after restarting the Avaya 96x1 Series IP Telephones and re-connecting the JPL headset.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

Avaya's formal testing and Declaration of Conformity is provided only on the headsets/handsets that carry the Avaya brand or logo. Avaya may conduct testing of non-Avaya headset/handset to determine interoperability with Avaya phones. However, Avaya does not conduct the testing of non-Avaya headsets/handsets for: Acoustic Pressure, Safety, Hearing Aid Compliance, EMC regulations, or any other tests to ensure conformity with safety, audio quality, long-term reliability or any regulation requirements. As a result, Avaya makes no representations whether a particular non-Avaya headset will work with Avaya's telephones or with a different generation of the same Avaya telephone.

Since there is no industry standard for handset interfaces, different manufacturers utilize different handset/headset interfaces with their telephones. Therefore, any claim made by a headset vendor that its product is compatible with Avaya telephones does not equate to a guarantee that the headset will provide adequate safety protection or audio quality.

## **2.1. Interoperability Compliance Testing**

The interoperability compliance testing was carried out on the latest SIP and H323 firmware for Avaya 96x1 Series IP Telephones. All test cases were performed manually. The following features were verified:

- Placing calls to the voicemail system. Voice messages were recorded and played back to verify that the playback volume and recording level were good.
- Placing calls from/to internal extensions to verify two-way audio.
- Placing calls from/to the PSTN to verify two-way audio.
- Hearing ring back tone for outgoing calls.
- Using the volume control buttons on the Avaya Telephone to adjust the audio volume.

## **2.2. Test Results**

All compliance test cases passed successfully. The following observation was noted.

- No configuration changes were made on the individual telephone. Whatever default settings for the headset were in place was used to test with.

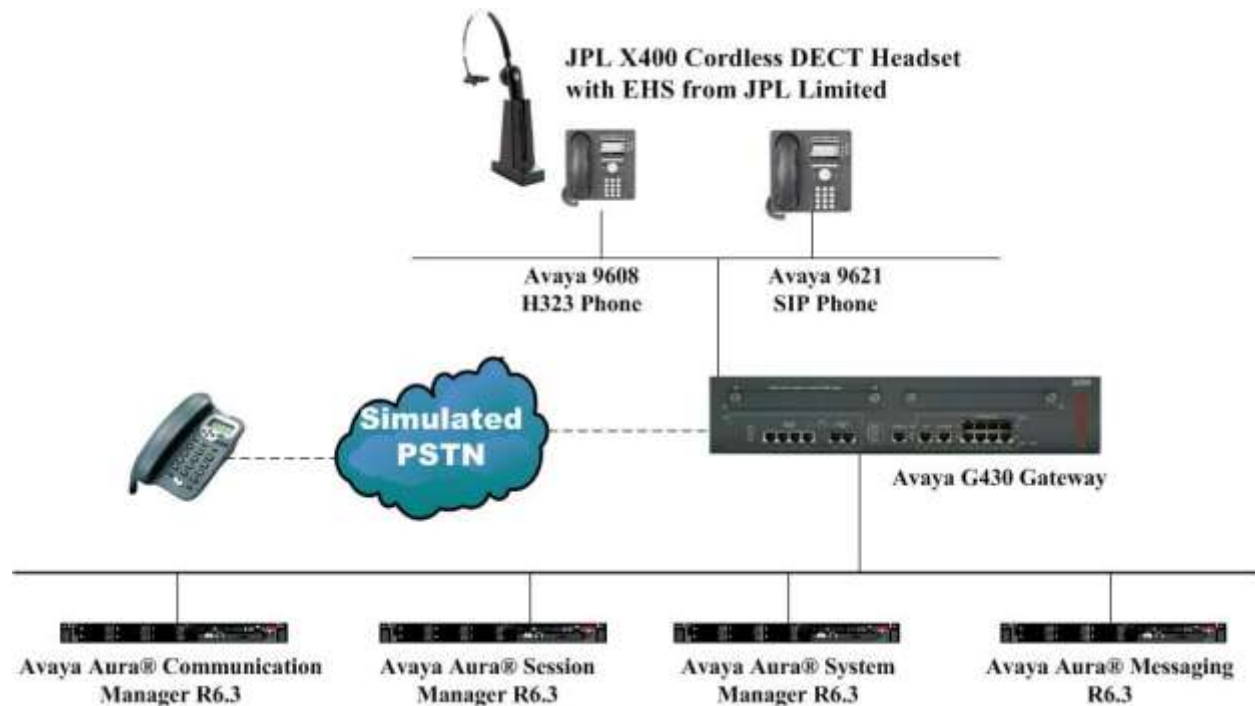
## **2.3. Support**

Support from Avaya is available by visiting the website <http://support.avaya.com>. Support from JPL-Limited is available at:

JPL Limited  
Unit 1, Church Close Business Park  
Church Close, Todber  
Sturminster Newton  
Dorset DT10 1JH  
England  
Phone: +44(0)1258 820100  
E-Mail: [sales@jpl.uk.com](mailto:sales@jpl.uk.com)

### 3. Reference Configuration

**Figure 1** shows the network topology during compliance testing. The JPL-X400 headset is connected to the telephone via an RJ9 cord from the DECT base station. The Electronic Hook Switch (EHS) provided with the JPL-X400 allows the user answer the call from a button on the headset.



**Figure 1: Network Solution of the JPL X400 Cordless DECT Headset with EHS connecting to Avaya 96x1 Series IP Telephones**

## 4. Equipment and Software Validated

The following equipment and software was used for the compliance test.

Equipment/Software	Release/Version
Avaya Aura® System Manager running on a virtual server	6.3.11 (SP11) Build No. – 6.3.0.8.5682 - 6.3.8.3204 Software Update Revision No: 6.3.7.7.2275
Avaya Aura® Communication Manager running on a virtual server	R6.3 SP9 R016x.03.0.124.0
Avaya Aura® Session Manager running on a virtual server	R6.3 SP11 Build No. – 6.3.11.0.631103
Avaya Aura® Messaging running on a virtual server	R6.3
Avaya 9608 IP Telephone running Avaya one-X® Deskphone H323	Version 6.6.028
Avaya 9621 IP Telephone running Avaya one-X® Deskphone SIP	Version 6.5.0.17
JPL Limited X400 Cordless DECT Headset with EHS	N/A

## 5. Configure Avaya Communication Manager

It is assumed that a fully functioning Communication Manager is in place with the necessary licensing. For further information on the configuration of Communication Manager please see **Section 10** of these Application Notes. This section covers the station configuration for the Avaya 96x1 IP Telephones. The configuration is performed via the System Access Terminal (SAT) on Communication Manager or via Avaya Aura® System Manager for SIP stations.

### 5.1. Configure Avaya 96x1 Series H323 Telephone

**Note:** To enable Auto-Answer on the IP telephone set the **Auto Answer** field on **Page 2** to the appropriate value, such as **all**.

display station 2016	Page 2 of 5	
	STATION	
FEATURE OPTIONS		
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	<b>Auto Answer: all</b>	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n	Bridged Idle Line Preference? n	
Bridged Call Alerting? n	Restrict Last Appearance? y	
Active Station Ringing: single		
	EMU Login Allowed? n	
H.320 Conversion? n	Per Station CPN - Send Calling Number?	
Service Link Mode: as-needed	EC500 State: enabled	
Multimedia Mode: enhanced	Audible Message Waiting? n	
MWI Served User Type:	Display Client Redirection? n	
AUDIX Name:	Select Last Used Appearance? n	
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
	Direct IP-IP Audio Connections? y	
Emergency Location Ext: 2016	Always Use? n IP Audio Hairpinning? n	

## 5.2. Configure Avaya 96x1 Series SIP Telephone

The SIP station was configured automatically through System Manager. Use the **display station** command to view the station for the 9621 IP deskphone.

**Note:** To enable Auto Answer on the IP deskphone set the **Auto Answer** field on **Page 2** to the appropriate value, such as **all**.

**Note:** On the SIP deskphone, the Headset Profile was set to '1'. To set the Headset Profile, press the **Menu** button on the phone and then navigate to **Options & Settings → Options & Settings → Advanced Options... → Headset Profile...** Select the **Profile1** option.

display station 1000		Page 2 of 6	
		STATION	
FEATURE OPTIONS			
LWC Reception: spe		Coverage Msg Retrieval? y	
LWC Activation? y		<b>Auto Answer: all</b>	
CDR Privacy? n		Data Restriction? n	
Per Button Ring Control? n		Idle Appearance Preference? n	
Bridged Call Alerting? n		Bridged Idle Line Preference? n	
Active Station Ringing: single		Restrict Last Appearance? y	
H.320 Conversion? n		Per Station CPN - Send Calling Number?	
		EC500 State: enabled	
MWI Served User Type:			
AUDIX Name:		Coverage After Forwarding? s	
		Direct IP-IP Audio Connections? y	
Emergency Location Ext: 1000		Always Use? n IP Audio Hairpinning? n	

## 6. Configuring Avaya 96x1 Series IP Telephones

The headset can be used with the Avaya 96x1 Series IP Telephones settings all left as default. Calls can be made and answered using the headset button on the telephone set. Some settings can be changed to allow the headset be the default answering device for all incoming calls if required.

### 6.1. Setting the audio path on an Avaya 96x1 IP Telephone

Each Avaya 96x1 IP telephone can be set to go off-hook on the speaker or the headset when an on-hook call is made. If auto-answer is set up, incoming calls are also answered on the default audio path designated here. This setting also determines whether the voice dialling feature gets its input from the speaker or the headset. Procedure is as follows.

1. Press Avaya Menu.
2. Select Options & Settings.
3. Press Select or OK.
4. Select Call Settings.
5. Press Select or OK.
6. Select Audio Path.
7. Press Change or OK or use the Right/Left arrows to change the speaker or headset setting. Press Save.

### 6.2. Configure 46xxsettings.txt File

#### For H.323 Deskphone Only

In the 46xxsettings.txt file, the HEADSETBIDIR parameter needs to be set to '1' so that switch hook and alerting are enabled for the H.323 deskphone only. This allows incoming call alert to be heard through the headset. Alternatively, the switch hook and alerting options can be enabled through the 96x1 phone menu. Press the **Menu** button on the phone and then navigate to **Options & Settings → Call Settings → Headset Signaling**. Select the **Switchhook & Alerting** option. Below is an example for setting this parameter.

```
##### HEADSET SETTINGS (H.323 ONLY) #####
##
## HEADSETBIDIR specifies whether bidirectional signaling
## on the headset interface will be enabled or disabled.
## Value Operation
## 0 Disabled (default)
## 1 Switchhook and alerting signaling are both enabled
## 2 Only switchhook signaling is enabled
## This parameter is supported by:
## 96x1 H.323 R6.3 and later (values 0-2)
## 96x1 H.323 R6.2.1 and later (values 0-1)
## Note that 96x1 H.323 R6.2 only supported signaling for alerting.
SET HEADSETBIDIR 1
```



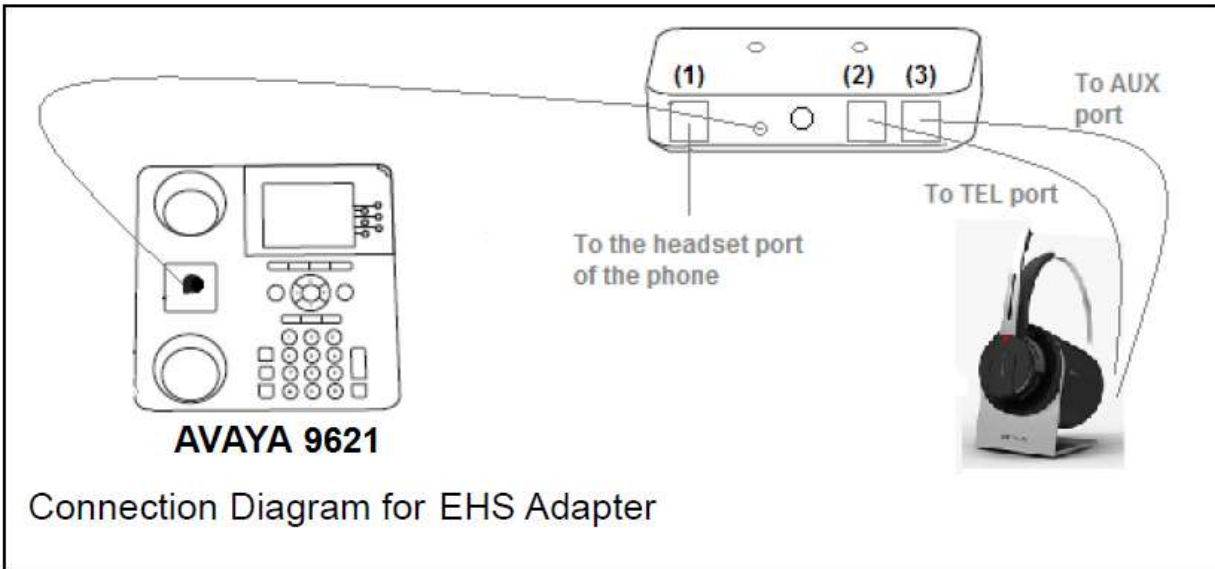
### **For H.323 and SIP Deskphones**

In the 46xxsettings.txt file, the HEADSYS parameter needs to be set appropriately depending on whether the headset button should be deactivated automatically if the far-end drops the call. For stations configured with auto-answer, set this parameter to '1' so that the headset button is not deactivated when the far-end drops the call. This allows the subsequent call to be answered automatically through the headset. Below is an example for setting this parameter. In this example, the parameter is set to '0', which would cause the headset button to be deactivated when the far-end drops the call first.

```
##### CALL CENTER SETTINGS #####
##
## HEADSYS specifies whether the telephone will go on-hook if the headset is active
## when a Disconnect message is received.
## Value Operation
## 0 The telephone will go on-hook if a Disconnect message is received when the headset is active
## 1 Disconnect messages are ignored when the headset is active
## Note: a value of 2 has the same effect as a value of 0, and
## a value of 3 has the same effect as a value of 1.
## This parameter is supported by:
## 96x1 H.323 R6.2.1 and later (the default value is 0 unless the value
## of CALLCTRSTAT is set to 1, in which case the default value is 1)
## 96x1 H.323 R6.1 and R6.2 ignore this parameter, and will ignore Disconnect messages
## if the user is logged in as a call center agent. If the user is not logged in
## as a call center agent, the telephone will go on-hook if a Disconnect message
## is received when the headset is active.
## 96x1 H.323 releases prior to R6.1 (the default value is 1)
## 96x1 SIP R6.4 and later (the default value is 0)
## 96x1 SIP R6.0 and later up to R6.4 (not included) (the default value is 1)
## 96x0 H.323 R1.2 and later (the default value is 1)
## 96x0 SIP R1.0 and later (the default value is 1)
## 16xx H.323 R1.3 and later (the default value is 1)
SET HEADSYS 0
```

## 7. Configure JPL X400 Wireless Headset to work with Avaya Telephones

The following setup is used to connect the Electronic Hook Switch adaptor to the existing JPL X400 Cordless DECT Headset and Avaya telephone. An RJ9 cord supplied by JPL Limited is used to connect the Electronic Hook Switch adaptor to the Avaya telephone headset port.



## 8. Verification Steps

The following steps can be taken to ensure that connections between the JPL headsets and Avaya 96x1 Series IP Telephones are achieved.

1. To answer a call press the button on the headset when the telephone is ringing the EHS should operate and the call is answered. The call is then heard on the headset.

## 9. Conclusion

These Application Notes outline the steps necessary to configure the JPL X400 Cordless DECT Headset with EHS from JPL Limited to allow full interoperability with Avaya 96x1 Series IP telephones, with both H323 and SIP firmware. Please refer to **Section 2.2** of these Application Notes for test results and observations.

## 10. Additional References

This section references documentation relevant to these Application Notes. Product documentation for Avaya products may be found at <http://support.avaya.com>

- [1] *Administering Avaya Aura® Communication Manager*, Document Number 03-300509.
- [2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Document Number 555-245-205.
- [3] *Administering Avaya Aura® Session Manager*, Doc ID 03-603324.
- [4] *Avaya one-X® Deskphone Edition for 96x1 Series IP Telephones Installation and Maintenance Guide*, Release 3.1, Issue 7, Document Number 16-300694.

JPL headset product documentation can be found at <http://www.jpltele.com>

# Appendix

## Avaya 9608 H323 IP Deskphone

display station 2016		Page 1 of 5
STATION		
Extension: 2016	Lock Messages? n	BCC: M
Type: 9608	Security Code: *	TN: 1
Port: S00102	Coverage Path 1:	COR: 1
Name: CCT Agent2	Coverage Path 2:	COS: 1
	Hunt-to Station:	Tests? y
STATION OPTIONS		
Location:	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 2016	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english	Button Modules: 0	
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? y	
	IP Video Softphone? y	
	Short/Prefixed Registration Allowed: default	
	Customizable Labels? y	

display station 2016	Page 2 of 5	
STATION		
FEATURE OPTIONS		
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n	Bridged Idle Line Preference? n	
Bridged Call Alerting? n	Restrict Last Appearance? y	
Active Station Ringing: single		
	EMU Login Allowed? n	
H.320 Conversion? n	Per Station CPN - Send Calling Number?	
Service Link Mode: as-needed	EC500 State: enabled	
Multimedia Mode: enhanced	Audible Message Waiting? n	
MWI Served User Type:	Display Client Redirection? n	
AUDIX Name:	Select Last Used Appearance? n	
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
Remote Softphone Emergency Calls: as-on-local	Direct IP-IP Audio Connections? y	
Emergency Location Ext: 2016	Always Use? n IP Audio Hairpinning? n	

display station 2016	STATION	Page 3 of 5																					
<p>             Conf/Trans on Primary Appearance? n              Bridged Appearance Origination Restriction? n      Offline Call Logging? y              Require Mutual Authentication if TLS? n           </p> <p>             Call Appearance Display Format: disp-param-default              IP Phone Group ID:              Enhanced Callr-Info Display for 1-Line Phones? n           </p> <p style="text-align: center;">ENHANCED CALL FORWARDING</p> <table border="0" style="width: 100%;"> <tr> <td></td> <td style="text-align: center;">Forwarded Destination</td> <td style="text-align: center;">Active</td> </tr> <tr> <td>Unconditional For Internal Calls To: 2015</td> <td></td> <td style="text-align: center;">n</td> </tr> <tr> <td>External Calls To: 2015</td> <td></td> <td style="text-align: center;">n</td> </tr> <tr> <td>Busy For Internal Calls To:</td> <td></td> <td style="text-align: center;">n</td> </tr> <tr> <td>External Calls To:</td> <td></td> <td style="text-align: center;">n</td> </tr> <tr> <td>No Reply For Internal Calls To: 2015</td> <td></td> <td style="text-align: center;">n</td> </tr> <tr> <td>External Calls To: 2015</td> <td></td> <td style="text-align: center;">n</td> </tr> </table> <p>SAC/CF Override: n</p>				Forwarded Destination	Active	Unconditional For Internal Calls To: 2015		n	External Calls To: 2015		n	Busy For Internal Calls To:		n	External Calls To:		n	No Reply For Internal Calls To: 2015		n	External Calls To: 2015		n
	Forwarded Destination	Active																					
Unconditional For Internal Calls To: 2015		n																					
External Calls To: 2015		n																					
Busy For Internal Calls To:		n																					
External Calls To:		n																					
No Reply For Internal Calls To: 2015		n																					
External Calls To: 2015		n																					

display station 2016	STATION	Page 4 of 5																					
<p>SITE DATA</p> <table border="0" style="width: 100%;"> <tr> <td>Room:</td> <td>Headset? n</td> </tr> <tr> <td>Jack:</td> <td>Speaker? n</td> </tr> <tr> <td>Cable:</td> <td>Mounting: d</td> </tr> <tr> <td>Floor:</td> <td>Cord Length: 0</td> </tr> <tr> <td>Building:</td> <td>Set Color:</td> </tr> </table> <p>ABBREVIATED DIALING</p> <table border="0" style="width: 100%;"> <tr> <td>List1:</td> <td>List2:</td> <td>List3:</td> </tr> </table> <p>BUTTON ASSIGNMENTS</p> <table border="0" style="width: 100%;"> <tr> <td>1: call-appr</td> <td>5:</td> </tr> <tr> <td>2: call-appr</td> <td>6:</td> </tr> <tr> <td>3: call-appr</td> <td>7:</td> </tr> <tr> <td>4:</td> <td>8:</td> </tr> </table> <p>voice-mail</p>			Room:	Headset? n	Jack:	Speaker? n	Cable:	Mounting: d	Floor:	Cord Length: 0	Building:	Set Color:	List1:	List2:	List3:	1: call-appr	5:	2: call-appr	6:	3: call-appr	7:	4:	8:
Room:	Headset? n																						
Jack:	Speaker? n																						
Cable:	Mounting: d																						
Floor:	Cord Length: 0																						
Building:	Set Color:																						
List1:	List2:	List3:																					
1: call-appr	5:																						
2: call-appr	6:																						
3: call-appr	7:																						
4:	8:																						

## Avaya 9621 SIP IP Deskphone

display station 1000		Page 1 of 6
STATION		
Extension: 1000	Lock Messages? n	BCC: 0
Type: 9621SIP	Security Code: *	TN: 1
Port: S00002	Coverage Path 1:	COR: 1
Name: SIP, EXT1000	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
Location:	Time of Day Lock Table:	
Loss Group: 19	Message Lamp Ext: 1000	
Display Language: english		
Survivable COR: internal		
Survivable Trunk Dest? y	IP SoftPhone? y	
IP Video Softphone? n		
Short/Prefixed Registration Allowed: default		

display station 1000		Page 2 of 6
STATION		
FEATURE OPTIONS		
LWC Reception: spe	Coverage Msg Retrieval? y	
LWC Activation? y	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Per Button Ring Control? n	Idle Appearance Preference? n	
Bridged Call Alerting? n	Bridged Idle Line Preference? n	
Active Station Ringing: single	Restrict Last Appearance? y	
H.320 Conversion? n	Per Station CPN - Send Calling Number?	
	EC500 State: enabled	
MWI Served User Type: qsig-mwi		
Coverage After Forwarding? s		
Remote Softphone Emergency Calls: as-on-local Direct IP-IP Audio Connections? y		
Emergency Location Ext: 1000	Always Use? n IP Audio Hairpinning? n	

display station 1000

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STATION

Bridged Appearance Origination Restriction? n      Offline Call Logging? y

IP Phone Group ID:

ENHANCED CALL FORWARDING

	Forwarded Destination	Active
Unconditional For Internal Calls To:		n
External Calls To:		n
Busy For Internal Calls To:		n
External Calls To:		n
No Reply For Internal Calls To:		n
External Calls To:		n

SAC/CF Override: n

display station 1000

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STATION

SITE DATA

Room:	Headset? n
Jack:	Speaker? n
Cable:	Mounting: d
Floor:	Cord Length: 0
Building:	Set Color:

ABBREVIATED DIALING

List1:	List2:	List3:
--------	--------	--------

BUTTON ASSIGNMENTS

1: call-appr	5: call-pkup	
2: call-appr	6: ec500	Timer? n
3: call-appr	7: extnd-call	
4: call-park	8:	

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